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<150> US 60/495,172
<151> 2003-08-14

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ctcggctgcc ggccacagac tggattttct gacatcaagt cccacgcgtt cttccgcagc     1560

atagactggg acttgctgga aagaagcag gcgctccctc cattccagcc acagatcaca     1620

gacgactacg gtctggacaa ctttgacaca cagttcacca gcgagcccgt gcagctgacc     1680

ccagacgatg aggatgccat aaagaggatc gaccagtcag agttcgaagg ctttgagtat     1740

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ggacacgcgt gattgaccct ttaactgtat ccttaaccac cgcatatgca tgccaggctg     1860

ggcacggctc cgagggcggc cagggacaga cgcttgcgcc gagaccgcag agggaagcgt     1920

cagcgggcgc tgctgggagc agaacagtcc ctcacacctg gcccggcagg cagcttcgtg     1980

ctggaggaac ttgctgctgt gcctgcgtcg cggcggatcc gcggggaccc tgccgagggg     2040

gctgtcatgc ggtttccaag gtgcacattt tccacggaaa cagaactcga tgcactgacc     2100

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9

aaaa   2164

<210>   7
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<212>   DNA
<213>   Homo sapiens

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cccagcagga ccggccccaa gatggaaggg agcggcggcc gcgtccgcct caaggcgcat   180

tacggggggg acatcttcat caccagcgtg gacgccgcca cgaccttcga ggagctctgt   240

gaggaagtga gagacatgtg tcgtctgcac cagcagcacc cgctcaccct caagtgggtg   300

gacagcgaag gtgacccttg cacggtgtcc tcccagatgg agctggaaga ggctttccgc   360

ctggcccgtc agtgcaggga tgaaggcctc atcattcatg ttttcccgag caccccctgag   420

cagcctggcc tgccatgtcc gggagaagac aaatctatct accgccgggg agccagaaga   480

tggaggaagc tgtaccgtgc caacggccac ctcttccaag ccaagcgctt taacaggaga   540

gcgtactgcg gtcagtgcag cgagaggata tggggcctcg cgaggcaagg ctacaggtgc   600

atcaactgca aactgctggt ccataagcgc tgccacggcc tcgtcccgct gacctgcagg   660

aagcatatgg attctgtcat gccttcccaa gagcctccag tagacgacaa gaacgaggac   720

gccgaccttc cttccgagga gacagatgga attgcttaca tttcctcatc ccggaagcat   780

gacagcatta aagacgactc ggaggacctt aagccagtta tcgatgggat ggatggaatc   840

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gtggtgaaga aagagctggt gcatgatgac gaggatattg actgggtaca gacagagaag   1020

cacgtgtttg agcaggcatc cagcaacccc ttcctggtcg gattacactc ctgcttccag   1080

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acagaggact acctttttcca agtgatcctg gagaagccca tccggatccc ccggttcctg    1560

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gactacggtc tggacaactt tgacacacag ttcaccagcg agcccgtgca gctgacccca    1800

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cacgcgtgat tgacccttta actgtatcct taaccaccgc atatgcatgc caggctgggc    1980

acggctccga gggcggccag ggacagacgc ttgcgccgag accgcagagg gaagcgtcag    2040

cgggcgctgc tgggagcaga acagtccctc acacctgggc ccgggcaggc cagcttcgtg    2100

ctggaggaac ttgctgctgt gcctgcgtcg cggcggatcc gcggggaccc tgccgagggg    2160

gctgtcatgc ggtttccaag gtgcacattt ccacggaaa cagaactcga tgcactgacc     2220

tgctccgcca ggaaagtgag cgtgtagcgt cctgaggaat aaaatgttcc gatgatgtgg    2280

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa                                2315
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<210> 8
<211> 1779
<212> DNA
<213> Homo sapiens

<400> 8
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tgtgaggaag tgagagacat gtgtcgtctg caccagcagc acccgctcac cctcaagtgg    180

gtggacagcg aaggtgaccc ttgcacggtg tcctcccaga tggagctgga agaggctttc    240

cgcctggccc gtcagtgcag ggatgaaggc ctcatcattc atgttttccc gagcacccct    300

gagcagcctg gcctgccatg tccgggagaa gacaaatcta tctaccgccg gggagccaga    360

agatggagga agctgtaccg tgccaacggc cacctcttcc aagccaagcg ctttaacagg    420

agagcgtact gcggtcagtg cagcgagagg atatggggcc tcgcgaggca aggctacagg    480

tgcatcaact gcaaactgct ggtccataag cgctgccacg cctcgtccc gctgacctgc      540

aggaagcata tggattctgt catgccttcc caagagcctc cagtagacga caagaacgag    600
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gacgccgacc ttccttccga ggagacagat ggaattgctt acatttcctc atcccggaag    660

catgacagca ttaaagacga ctcggaggac cttaagccag ttatcgatgg gatggatgga    720

atcaaaatct ctcaggggct tgggctgcag gactttgacc taatcagagt catcgggcgc    780

gggacgtacg ccaaggttct cctggtgcgg ttgaagaàga atgaccaaat ttacgccatg    840

aaagtggtga agaaagagct ggtgcatgat gacgaggata ttgactgggt acagacagag    900

aagcacgtgt ttgagcaggc atccagcaac cccttcctgg tcggattaca ctcctgcttc    960

cagacgacaa gtcggttgtt cctggtcatt gagtacgtca acggcgggga cctgatgttc   1020

cacatgcaga ggcagaggaa gctccctgag gagcacgcca ggttctacgc ggccgagatc   1080

tgcatcgccc tcaacttcct gcacgagagg gggatcatct acagggacct gaagctggac   1140

aacgtcctcc tggatgcgga cggacacatc aagctcacag actacggcat gtgcaaggaa   1200

ggcctgggcc ctggtgacac aacgagcact ttctgcggaa ccccgaatta catcgccccc   1260

gaaatcctgc ggggagagga gtacgggttc agcgtggact ggtgggcgct gggagtcctc   1320

atgtttgaga tgatggccgg gcgctccccg ttcgacatca tcaccgacaa cccggacatg   1380

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gacgactacg gtctggacaa ctttgacaca cagttcacca gcgagcccgt gcagctgacc   1680

ccagacgatg aggatgccat aaagaggatc gaccagtcag agttcgaagg ctttgagtat   1740

atcaacccat tattgctgtc caccgaggag tcggtgtga                          1779
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<210>   9
<211>   2306
<212>   DNA
<213>   Homo sapiens

<400>   9
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accggcccca agatggaagg gagcggcggc cgcgtccgcc tcaaggcgca ttacgggggg   180

gacatcttca tcaccagcgt ggacgccgcc acgaccttcg aggagctctg tgaggaagtg   240

agagacatgt gtcgtctgca ccagcagcac ccgctcaccc tcaagtgggt ggacagcgaa   300
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ggtgacccett gcacggtgtc ctcccagatg gagctggaag aggctttccg cctggcccgt        360

cagtgcaggg atgaaggcct catcattcat gtttttcccga gcacccctga gcagcctggc        420

ctgccatgtc cgggagaaga caaatctatc taccgccggg gagccagaag atggaggaag        480

ctgtaccgtg ccaacggcca cctcttccaa gccaagcgct ttaacaggag agcgtactgc        540

ggtcagtgca gcgagaggat atggggcctc gcgaggcaag gctacaggtg catcaactgc        600

aaactgctgg tccataagcg ctgccacggc ctcgtcccgc tgacctgcag gaagcatatg        660

gattctgtca tgccttccca agagcctcca gtagacgaca gaacgagga cgccgacctt         720

ccttccgagg agacagatgg aattgcttac atttcctcat cccggaagca tgacagcatt        780

aaagacgact cggaggacct taagccagtt atcgatggga tggatggaat caaaatctct        840

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aaggttctcc tggtgcggtt gaagaagaat gaccaaattt acgccatgaa agtggtgaag        960

aaagagctgg tgcatgatga cgaggatatt gactgggtac agacagagaa gcacgtgttt       1020

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cggttgttcc tggtcattga gtacgtcaac ggcggggacc tgatgttcca catgcagagg       1140

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ttgctgtcca ccgaggagtc ggtgtgaggc cgcgtgcgtc tctgtcgtgg acacgcgtga       1920

ttgaccctttt aactgtatcc ttaaccaccg catatgcatg ccaggctggg cacggctccg      1980
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13

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cttgctgctg tgcctgcgtc gcggcggatc cgcggggacc ctgccgaggg ggctgtcatg    2160

cggtttccaa ggtgcacatt ttccacggaa acagaactcg atgcactgac ctgctccgcc    2220

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aaaaaaaaaa aaaaaaaaaa aaaaaa                                         2306
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<210>  10
<211>  2340
<212>  DNA
<213>  Homo sapiens

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ctcccggggc gcagcgctga cggcggcggg gggagcgcgc catgcccagc aggaccggcc    180

ccaagatgga agggagcggc ggccgcgtcc gcctcaaggc gcattacggg ggggacatct    240

tcatcaccag cgtggacgcc gccacgacct tcgaggagct ctgtgaggaa gtgagagaca    300

tgtgtcgtct gcaccagcag cacccgctca ccctcaagtg ggtggacagc gaaggtgacc    360

cttgcacggt gtcctcccag atggagctgg aagaggcttt ccgcctggcc cgtcagtgca    420

gggatgaagg cctcatcatt catgttttcc cgagcacccc tgagcagcct ggcctgccat    480

gtccgggaga agacaaatct atctaccgcc ggggagccag aagatggagg aagctgtacc    540

gtgccaacgg ccacctcttc caagccaagc gctttaacag gagagcgtac tgcggtcagt    600

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ttgggctgca ggactttgac ctaatcagag tcatcgggcg cgggagctac gccaaggttc    960

tcctggtgcg gttgaagaag aatgaccaaa tttacgccat gaaagtggtg aagaaagagc   1020

tggtgcatga tgacgaggat attgactggg tacagacaga gaagcacgtg tttgagcagg   1080

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agctccctga ggagcacgcc aggttctacg cggccgagat ctgcatcgcc ctcaacttcc    1260

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actttgacac acagttcacc agcgagcccg tgcagctgac cccagacgat gaggatgcca    1860

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tttaactgta tccttaacca ccgcatatgc atgccaggct gggcacggct ccgagggcgg    2040

ccagggacag acgcttgcgc cgagaccgca gagggaagcg tcagcgggcg ctgctgggag    2100

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caaggtgcac attttccacg gaaacagaac tcgatgcact gacctgctcc gccaggaaag    2280

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<210> 11
<211> 587
<212> PRT
<213> Homo sapiens

<400> 11

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Met Ser His Thr Val Ala Gly Gly Gly Ser Gly Asp His Ser His Gln
1               5                   10                  15


Val Arg Val Lys Ala Tyr Tyr Arg Gly Asp Ile Met Ile Thr His Phe
            20                  25                  30


Glu Pro Ser Ile Ser Phe Glu Gly Leu Cys Asn Glu Val Arg Asp Met
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                35   40   45

Cys Ser Phe Asp Asn Glu Gln Leu Phe Thr Met Lys Trp Ile Asp Glu
    50   55   60

Glu Gly Asp Pro Cys Thr Val Ser Ser Gln Leu Glu Leu Glu Glu Ala
65   70   75   80

Phe Arg Leu Tyr Glu Leu Asn Lys Asp Ser Glu Leu Leu Ile His Val
              85   90   95

Phe Pro Cys Val Pro Glu Arg Pro Gly Met Pro Cys Pro Gly Glu Asp
          100   105   110

Lys Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu Tyr Cys
          115   120   125

Ala Asn Gly His Thr Phe Gln Ala Lys Arg Phe Asn Arg Arg Ala His
    130   135   140

Cys Ala Ile Cys Thr Asp Arg·Ile Trp Gly Leu Gly Arg Gln Gly Tyr
145   .150   155   160

Lys Cys Ile Asn Cys Lys Leu Leu Val His Lys Lys Cys His Lys Leu
              165   170   175

Val Thr Ile Glu Cys Gly Arg His Ser Leu Pro Gln Glu Pro Val Met
          180   185   190

Pro Met Asp Gln Ser Ser Met His Ser Asp His Ala Gln Thr Val Ile
          195   200   205

Pro Tyr Asn Pro Ser Ser His Glu Ser Leu Asp Gln Val Gly Glu Glu
    210   215   220

Lys Glu Ala Met Asn Thr Arg Glu Ser Gly Lys Ala Ser Ser Ser Leu
225   230   235   240

Gly Leu Gln Asp Phe Asp Leu Leu Arg Val Ile Gly Arg Gly Ser Tyr
              245   250   255

Ala Lys Val Leu Leu Val Arg Leu Lys Lys Thr Asp Arg Ile Tyr Ala
          260   265   270

```
Met Lys Val Val Lys Lys Glu Leu Val Asn Asp Asp Glu Asp Ile Asp
        275             280             285

Trp Val Gln Thr Glu Lys His Val Phe Glu Gln Ala Ser Asn His Pro
    290             295             300

Phe Leu Val Gly Leu His Ser Cys Phe Gln Thr Glu Ser Arg Leu Phe
305             310             315             320

Phe Val Ile Glu Tyr Val Asn Gly Gly Asp Leu Met Phe His Met Gln
            325             330             335

Arg Gln Arg Lys Leu Pro Glu Glu His Ala Arg Phe Tyr Ser Ala Glu
        340             345             350

Ile Ser Leu Ala Leu Asn Tyr Leu His Glu Arg Gly Ile Ile Tyr Arg
        355             360             365

Asp Leu Lys Leu Asp Asn Val Leu Leu Asp Ser Glu Gly His Ile Lys
    370             375             380

Leu Thr Asp Tyr Gly Met Cys Lys Glu Gly Leu Arg Pro Gly Asp Thr
385             390             395             400

Thr Ser Thr Phe Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu
            405             410             415

Arg Gly Glu Asp Tyr Gly Phe Ser Val Asp Trp Trp Ala Leu Gly Val
        420             425             430

Leu Met Phe Glu Met Met Ala Gly Arg Ser Pro Phe Asp Ile Val Gly
    435             440             445

Ser Ser Asp Asn Pro Asp Gln Asn Thr Glu Asp Tyr Leu Phe Gln Val
    450             455             460

Ile Leu Glu Lys Gln Ile Arg Ile Pro Arg Ser Leu Ser Val Lys Ala
465             470             475             480

Ala Ser Val Leu Lys Ser Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu
            485             490             495
```

```
Gly Cys His Pro Gln Thr Gly Phe Ala Asp Ile Gln Gly His Pro Phe
            500                 505                 510

Phe Arg Asn Val Asp Trp Asp Met Met Glu Gln Lys Gln Val Val Pro
            515                 520                 525

Pro Phe Lys Pro Asn Ile Ser Gly Glu Phe Gly Leu Asp Asn Phe Asp
            530                 535                 540

Ser Gln Phe Thr Asn Glu Pro Val Gln Leu Thr Pro Asp Asp Asp Asp
545                 550                 555                 560

Ile Val Arg Lys Ile Asp Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile
            565                 570                 575

Asn Pro Leu Leu Met Ser Ala Glu Glu Cys Val
            580                 585
```

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<210> 12
<211> 592
<212> PRT
<213> Homo sapiens

<400> 12
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Met Pro Ser Arg Thr Asp Pro Lys Met Glu Gly Ser Gly Gly Arg Val
1               5               10                  15

Arg Leu Lys Ala His Tyr Gly Gly Asp Ile Phe Ile Thr Ser Val Asp
            20                  25                  30

Ala Ala Thr Thr Phe Glu Glu Leu Cys Glu Glu Val Arg Asp Met Cys
            35                  40                  45

Arg Leu His Gln Gln His Pro Leu Thr Leu Lys Trp Val Asp Ser Glu
    50                  55                  60

Gly Asp Pro Cys Thr Val Ser Ser Gln Met Glu Leu Glu Glu Ala Phe
65                  70                  75                  80

Arg Leu Ala Arg Gln Cys Arg Asp Glu Gly Leu Ile Ile His Val Phe
            85                  90                  95

Pro Ser Thr Pro Glu Gln Pro Gly Leu Pro Cys Pro Gly Glu Asp Lys
```

```
            100                    105                    110


Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu Tyr Arg Ala
        115             120             125


Asn Gly His Leu Phe Gln Ala Lys Arg Phe Asn Arg Arg Ala Tyr Cys
    130             135             140


Gly Gln Cys Ser Glu Arg Ile Trp Gly Leu Ala Arg Gln Gly Tyr Arg
145             150             155             160


Cys Ile Asn Cys Lys Leu Leu Val His Lys Arg Cys His Gly Leu Val
            165             170             175


Pro Leu Thr Cys Arg Lys His Met Asp Ser Val Met Pro Ser Gln Glu
            180             185             190


Pro Pro Val Asp Asp Lys Asn Glu Asp Ala Asp Leu Pro Ser Glu Glu
        195             200             205


Thr Asp Gly Ile Ala Tyr Ile Ser Ser Ser Arg Lys His Asp Ser Ile
    210             215             220


Lys Asp Asp Ser Glu Asp Leu Lys Pro Val Ile Asp Gly Met Asp Gly
225             230             235             240


Ile Lys Ile Ser Gln Gly Leu Gly Leu Gln Asp Phe Asp Leu Ile Arg
            245             250             255


Val Ile Gly Arg Gly Ser Tyr Ala Lys Val Leu Leu Val Arg Leu Lys
            260             265             270


Lys Asn Asp Gln Ile Tyr Ala Met Lys Val Val Lys Lys Glu Leu Val
            275             280             285


His Asp Asp Glu Asp Ile Asp Trp Val Gln Thr Glu Lys His Val Phe
    290             295             300


Glu Gln Ala Ser Ser Asn Pro Phe Leu Val Gly Leu His Ser Cys Phe
305             310             315             320


Gln Thr Thr Ser Arg Leu Phe Leu Val Ile Glu Tyr Val Asn Gly Gly
            325             330             335
```

Asp Leu Met Phe His Met Gln Arg Gln Arg Lys Leu Pro Glu Glu His
        340   345   350

Ala Arg Phe Tyr Ala Ala Glu Ile Cys Ile Ala Leu Asn Phe Leu His
        355   360   365

Glu Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn Val Leu Leu
    370   375   380

Asp Ala Asp Gly His Ile Lys Leu Thr Asp Tyr Gly Met Cys Lys Glu
385   390   395   400

Gly Leu Gly Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly Thr Pro Asn
            405   410   415

Tyr Ile Ala Pro Glu Ile Leu Arg Gly Glu Glu Tyr Gly Phe Ser Val
            420   425   430

Asp Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met Ala Gly Arg
        435   440   445

Ser Pro Phe Asp Ile Ile Thr Asp Asn Pro Asp Met Asn Thr Glu Asp
    450   455   460

Tyr Leu Phe Gln Val Ile Leu Glu Lys Pro Ile Arg Ile Pro Arg Phe
465   470   475   480

Leu Ser Val Lys Ala Ser His Val Leu Lys Gly Phe Leu Asn Lys Asp
            485   490   495

Pro Lys Glu Arg Leu Gly Cys Arg Pro Gln Thr Gly Phe Ser Asp Ile
        500   505   510

Lys Ser His Ala Phe Phe Arg Ser Ile Asp Trp Asp Leu Leu Glu Lys
        515   520   525

Lys Gln Ala Leu Pro Pro Phe Gln Pro Gln Ile Thr Asp Asp Tyr Gly
    530   535   540

Leu Asp Asn Phe Asp Thr Gln Phe Thr Ser Glu Pro Val Gln Leu Thr
545   550   555   560

Pro Asp Asp Glu Asp Ala Ile Lys Arg Ile Asp Gln Ser Glu Phe Glu
            565   570   575

Gly Phe Glu Tyr Ile Asn Pro Leu Leu Leu Ser Thr Glu Glu Ser Val
            580   585   590

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